

# City of Alexandria, Virginia

## MEMORANDUM

DATE: FEBRUARY 11, 2009

TO: VIRGINIA PAVING COMMUNITY LIAISON COMMITTEE

THROUGH: LALIT SHARMA, P.E., DIVISION CHIEF, T&ES, OEQ *LS*

FROM: JULIUS HOLMES, AIR COMPLIANCE SPECIALIST, T&ES, OEQ *JH*

SUBJECT: VIRGINIA PAVING ASPHALT PLANT UPDATE

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The purpose of this memorandum is to provide the Virginia Paving Community Liaison Committee (the Committee) with an update regarding the operations at the Virginia Paving Asphalt Plant (VA Paving) located at 5601 Courtney Avenue in Alexandria. VA Paving operates a hot-mix asphalt facility consisting of two production units. In addition, FCC Environmental operates a recycled oil facility on the same property. The Special Use Permit (SUP), issued in November 2006, contains 78 conditions that govern the operations of the plant to protect the health and well being of the community and environment.

The following are the major benchmarks/milestones since the last Committee meeting on November 18, 2008:

- VA Paving has revised its 24-hour complaint hotline procedures to incorporate the valuable input provided by the Committee. The complaint hotline now forwards calls automatically and will be answered by a live person. The VA Paving 24-hour complaint hotline number remains the same (703) 906-9918.
- VA Paving performed an emissions test on the stacks for Plant 1 on October 21-23, 2008 and Plant 2 on November 12-14, 2008. The test results have been received by the City and the Virginia Department of Environmental Quality (VADEQ). The City has performed a review of the stack test results (discussed below) and is awaiting VADEQ's response.
- The City continues to monitor VA Paving's operations and evaluates them against SUP production caps and other limits on a weekly basis.
- A quarterly report was submitted by VA Paving on January 30, 2009 for the previous quarter summarizing their operations.
- The City continues to respond to odor complaints in a timely manner.
- The City continues to monitor community conditions on a routine basis and continues to monitor VA Paving operations on a weekly basis.
- The City continues to operate an ambient air monitoring station for particulate matter at the Armistead Boothe Park in Cameron Station. (See attachment for the updated data)
- VA Paving's request to administratively amend SUP to include natural gas as fuel oil is pending with the City awaiting VADEQ's action/approval of their permit.

## **VA Paving Complaints and City Response Summary**

The 24-hour VA Paving Complaint Hotline received three complaints during this time period. The City received the same three complaints during this time period via email and/or telephone. All complaints originated in the Cameron Station area. City staff investigations were conducted within 1 to 2 hours after notification was received via email/or telephone calls.

**Complaint # 1: Odor Complaint:** The City staff gathered information on wind direction relative to the place odors were detected. The odor complaint was possibly the result of a FCC Environmental maintenance procedure. During this time period FCC Environmental was under going there annual tank cleaning process, a once a year maintenance activity that lasts for 1-3 days. The annual tank cleaning is a process to reduce build-ups that would likely produce additional, preventable odor complaints. City staff visits this facility frequently and notified the on-site facility manager of the complaint to improve their operations during processing and transfers of recycled fuel oil. FCC Environmental currently conducts daily measurement of volatile organic compounds (VOCs) levels around the facility. This log includes multiple readings per day on their air filtration system and additional points around the facility. This helps to insure that the levels are not excessive and help the facility to take preventive measures and avoid potential odor complaints.

**Complaint # 2:** Complaint was related to the VA paving locomotive left idling near residential Cameron Station. This complaint was received via phone call at City Hall after a call to the VA Paving hotline. City Staff immediately made contact with VA Paving to resolve this issue and proceeded to the plant. Due to extremely frigid conditions the locomotive was unable to move, the brake assemblies were frozen and would not release. Upon arrival, plant personnel were found working to free the brake assemblies. As a result of this complaint VA Paving verbally agreed to drain the system to remove moisture and heat the brake assemblies before starting the train.

**Complaint # 3: Odor Complaint:** The City staff gathered information on wind direction relative to the place odors were detected. This complaint was received via phone call at City Hall after a call to the VA Paving hotline. City staff immediately made contact with VA Paving to resolve this issue and proceeded to the plant. After notification from the plant that operation had not begun, Mr. Holmes called the complainant to get details on the nature of the complaint. Complainant was not sure of the odor and a complete survey of the area was completed. The complaint could not be validated by the City Staff.

The City requests that all complaints be called in immediately to the VA Paving 24-hour Hotline which can then be followed with calls to the City Nuisance Abatement hotline or Julius Holmes (City staff assigned to VA Paving). It is extremely difficult to investigate and validate complaints, particularly odor complaints that are reported long after the fact. Please share this information with members of the community so that complaints and concerns can be thoroughly investigated and resolved. The VA Paving 24-hour complaint hotline number remains the same (703) 906-9918. The City Nuisance Abatement hotline is (703) 836-0041 and Mr. Holmes' contact information is: (703) 519-3400 ext.116 office and email address: [Julius.holmes@alexandriava.gov](mailto:Julius.holmes@alexandriava.gov)

### **Asphalt Production Data**

VA Paving submits weekly reports to the City on hourly and daily production data, and the type and quantity of fuels used. This enables the City to monitor operations for limits set in the SUP. On both sets of limitations there have been no violations as of February 11, 2008.

| <b>SUP LIMIT (2008)</b>                    | <b>ACTUALS(2008)</b>              |
|--------------------------------------------|-----------------------------------|
| Annual production: 850,000 tons            | 2008 production: 546,829 tons     |
| Annual Night Time production: 275,000 tons | 2008 production: 48,595 tons      |
| Annual night time shifts: 110              | 2008 actual night time shifts: 50 |

Totals for 2008

### **Operations Updates**

There have been several operational updates during this period. VA Paving, at the last Committee meeting and in a letter to the City, committed to operational and procedural changes at the plant with the goal of improving complaint response and operational improvements to prevent potential complaints. These included:

- VA Paving has revised its 24-hour complaint hotline to incorporate the valuable input provided by the Committee. The complaint hotline now forwards calls automatically and will always be answered by a live person. The VA Paving 24-hour complaint hotline number remains the same (703) 906-9918.
- VA Paving revised their existing operations checklist and added a pre-operation and post complaint checklist that requires plant personnel to record relevant information at will be used to identify odor issues. Effectiveness of this procedure will be more evident as operations intensify later in the spring and summer.
- VA Paving has extended environmental training to additional staff. This type of training will increase the awareness of environmental issues as they occur.
- To conduct parametric monitoring for the blue smoke controls equipment to optimize its performance.

### **Preliminary Stack Test Results**

The City's SUP included routine stack test requirements to insure continued demonstration of compliance with the emission limits in the VDEQ permit. On October 21-23, 2008 and November 12-14, 2008, VA Paving performed stack testing on Plant 1 and Plant 2 to: (1) meet the permitting specifications required by the Virginia Department of Environmental Quality (VADEQ) to approve the request for an amendment to their minor new source review permit; and (2) substitute testing results obtained from the previous stack tests performed on August 28-31, 2007 and September 12-14, 2007 with the 2008 results. The results from the 2007 stack tests were deemed invalid by VADEQ due to inability to verify the type of fuel oil used during the testing.

The following pollutants were measured during the stack tests:

- Oxides of Nitrogen (NO<sub>x</sub>);
- Carbon Monoxide (CO);
- Total Particulates;
- Particulates equal to or less than 10 microns in diameter (PM<sub>10</sub>);
- Particulates equal to or less than 2.5 microns in diameter (PM<sub>2.5</sub>);
- Sulfur Dioxide (SO<sub>2</sub>);
- Total Volatile Organic Compounds (VOCs); and
- Formaldehyde (CH<sub>2</sub>O).

Based upon the City's review of the stack tests results, the emission rates for NO<sub>x</sub>, CO, and VOCs are above the VADEQ 2005 State Air Permit limits as well as the proposed VDEQ permit (2008). VA Paving has submitted a revised certification for fuel oil analyses performed by Penniman & Browne on the fuel samples obtained during the stack testing to determine the concentration of metals, polychlorinated biphenyls (PCBs), Halogens, etc. This revised certification as well the fuel certification by FCC shows the concentrations within the limits. VADEQ is conducting independent analysis of the split samples from the fuel used during the stack test. The City has asked VDEQ to share their determination on the stack test results and results of their independent analysis of the fuel oil with the City. This will help the City to conduct more meaningful analysis of the data submitted thus far.

On February 6, 2009, City staff met with VA Paving representatives to discuss the City's preliminary findings (as outlined above) on the stack tests results and get an update on VA Paving's discussions with VDEQ. VA Paving has committed to provide a written response to the City that comprehensively addresses the issues raised by the analysis in the coming days. City staff is also monitoring VADEQ's actions regarding the stack tests results and is awaiting their response which includes the results of the fuel analyses performed by State's independent laboratory.

### **Ambient Air Quality Monitoring**

The City continues to monitor ambient air for particulate matter at the monitoring station located at Armistead Boothe Park, near the Samuel Tucker Elementary School in Cameron Station. The monitoring is being conducted to measure the ambient air concentration of particulate matter equal to or less than 10 microns in diameter (i.e., PM-10) in the air surrounding Cameron Station. The report published in November 18, 2008, for the period June 2006 to November 2008, concluded that PM-10 concentrations at Cameron Station remain well below the National Ambient Air Quality Standard. We have included this report as an attachment.

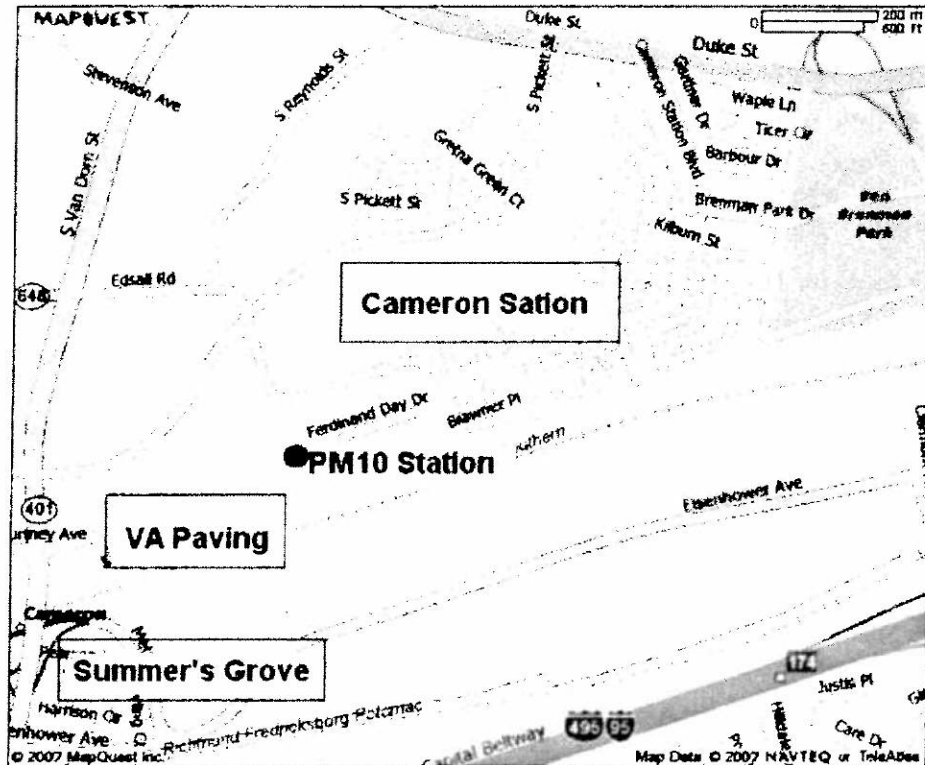
**ATTACHMENT**      Cameron Station PM10 Air Monitoring Data

## **CAMERON STATION- AMBIENT AIR QUALITY MONITORING (UPDATED 11/18/2008)**

The City of Alexandria began routinely monitoring ambient air for particulate matter in 2006 at a new monitoring station located at Armistead Boothe Park, near the Samuel Tucker Elementary School in Cameron Station. Monitoring is being conducted to measure the ambient air concentrations of particulate matter less than 10 microns in diameter (PM10) in the surrounding Cameron Station monitor. This section of the report presents brief background information for this project, the analytical protocols used, and the monitoring results. Lastly, this report discusses the relevant findings.

### **Background**

Residents near the VAP facility have expressed concerns about the health effects from potential exposure to particulate matter in their community. Specifically, the residents have raised concerns about emissions generated at the Virginia Paving hot mix asphalt facility. This facility is located near residential areas at Cameron Station and Summer's Grove. The following picture depicts the VAP property and surrounding areas.





To address these concerns, the City conducted a short-term monitoring study in August of 2004. Two monitors were used for the study, one located at the Armistead Boothe Park and the other at the Ben Brenman Park. The study was designed to monitor PM-10 levels on days when its levels were anticipated to be the highest, based on engineering best practice analysis of weather conditions and predicted wind direction. Monitoring on days when rainfall was predicted was avoided. The results from this short monitoring period in 2004 met the national ambient air quality. However, because they were higher than expected, the City installed a new long term monitoring station to measure PM-10 at Armistead Boothe Park, near the Samuel Tucker Elementary School. This brief report presents the data collected at this newly established monitoring station since its inception, i.e. June 4, 2006.

### **Local Sources of Particulate Matter**

Particulate Matter 2.5 microns or smaller in diameter (PM<sub>2.5</sub>) is considered a regional pollutant for the Washington, DC area. There are several sources of particulates likely to affect air quality in the Armistead Boothe Park area monitor. These includes industrial sources such as Covanta Energy - Waste facility, Mirant's coal-fired Potomac River Generating Station, Virginia Paving hot mix asphalt plant, and Vulcan Materials aggregate handling facility. Additionally, emissions generated from vehicular traffic (e.g., Route 95/495 from Springfield to the Woodrow Wilson Bridge) and roadway dust, including passenger cars and light and heavy-duty trucks, are likely to contribute to the total amount of particulate matter in the neighborhood. Contributions can also be expected to occur from construction activities and off-road fuel-burning equipment such as lawn and garden equipment, as well as natural sources such as wind blown dust.

The City performed an analysis of the magnitude of emissions that are generated from the industrial and on-road mobile sources to develop an understanding of the relative contribution they may have on local air quality. In addition, microscopic analysis of the PM-10 samples collected in August 2004 showed particulate matter properties often associated with fuel combustion sources. However, it is not possible from these results to identify the exact source(s) of the measured particulate matter.

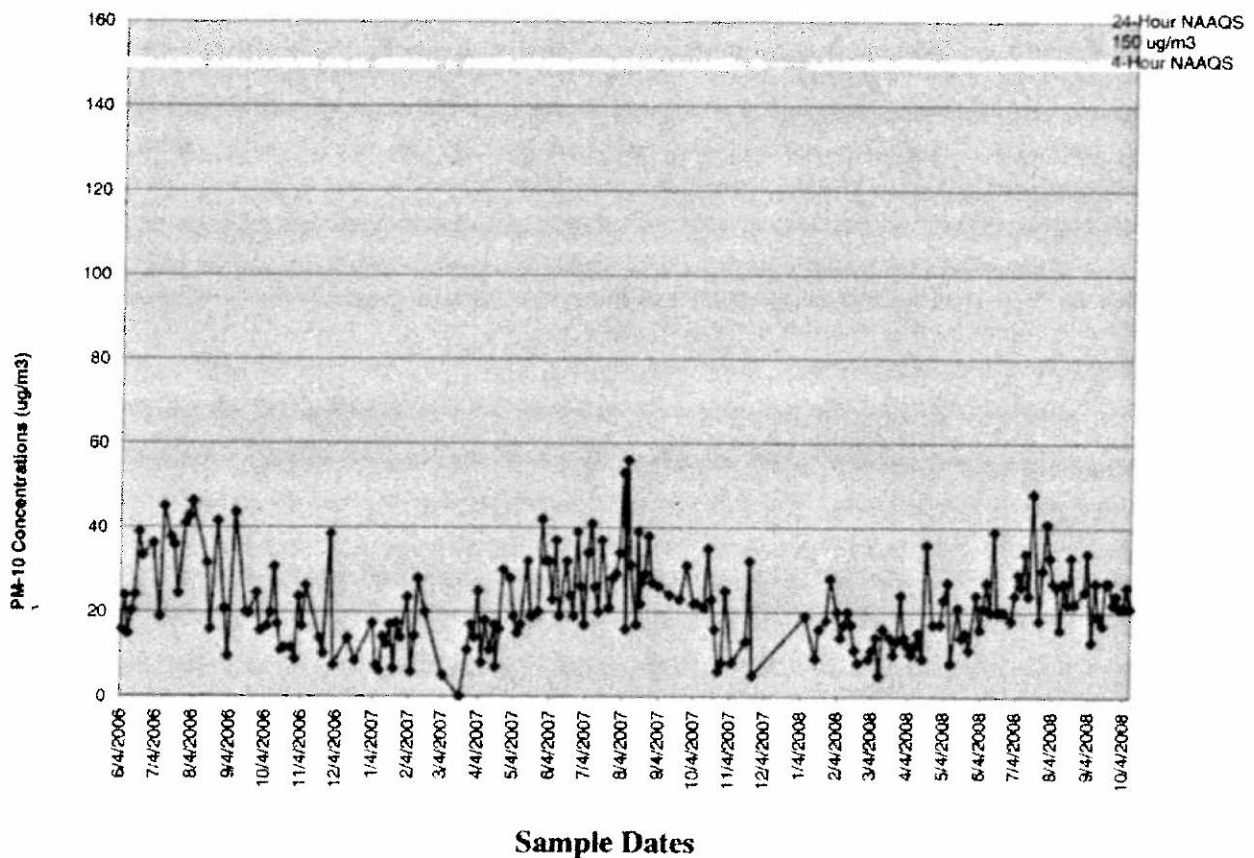
In an effort to address the region's air quality issues, the City of Alexandria participates in the region's air quality planning efforts for Northern Virginia and the Metropolitan Washington area through the Metropolitan Washington Air Quality Committee (MWAQC). Vice-Mayor Redella S. Pepper is the City's representative at the MWAQC. The City is also actively involved in discussions with respect to the State Implementation Plan (SIP) for PM<sub>2.5</sub> in the Northern Virginia area. Other initiatives by the City include outreach programs that were delineated in the report *Environment for a Healthier Alexandria* published in 2007.

The EPA established a particulate matter standard for particles with an aerodynamic diameter of less than 2.5 microns in 1997. These "fine" particles were shown to have increased adverse health effects upon certain segments of the American public, such as children and the elderly. On April 5, 2005, specific counties and cities within the Metropolitan Washington DC region (including Alexandria) were designated as non-attainment for the PM<sub>2.5</sub> standard. Monitoring data for the Metropolitan Washington DC

region indicate that the area is below the 24-hour PM<sub>2.5</sub> standard; however, the metropolitan region as a whole is not meeting the annual PM<sub>2.5</sub> standard.

### Monitoring Results

The following graphic summarizes the PM<sub>10</sub> monitoring results for the long-term monitoring station located at Boothe Park near the Samuel Tucker School. Monitoring at this location started in June of 2006. The 24-hour average PM<sub>10</sub> concentrations are compared to the EPA-specified National Ambient Air Quality Standard (NAAQS) of 150  $\mu\text{g}/\text{m}^3$ . A comparison of the monitoring results with the NAAQS shows that the ambient PM<sub>10</sub> concentrations at Cameron Station are below the NAAQS, as depicted in the chart below. As expected, the results show considerable day-to-day variability.



For the purpose of demonstrating compliance with NAAQs, SUP condition 28a states that: The City shall continue operating the PM<sub>10</sub> monitor at Tucker School until three years of valid data have been collected. Once three years of data is collected, the City shall determine the 98<sup>th</sup> percentile of this data, per the NAAQS, and then multiply that value by 75%, to impute a 98<sup>th</sup> percentile value for PM<sub>2.5</sub>. Appendix 2 includes a schedule for the monitoring days at the Cameron Station PM<sub>10</sub> monitor. Table 5-1, summarizes the PM<sub>10</sub> monitoring data for 2008, showing the number of samples collected and the maximum values for each of the quarter in the year.

**Table 5-1: Summary of PM10 Monitoring Results\***  
**Armistead Boothe Park Station**

| 2008 Quarter                      | Maximum Value<br>ug/m3 | Number of Samples | Arithmetic Mean<br>ug/m3 |
|-----------------------------------|------------------------|-------------------|--------------------------|
| 1 <sup>st</sup> Quarterly Totals  | 28                     | 21                | 14.6                     |
| 2 <sup>nd</sup> Quarterly Totals  | 39                     | 25                | 18.9                     |
| 3 <sup>rd</sup> Quarterly Totals  | 48                     | 28                | 26.0                     |
| 4 <sup>th</sup> Quarterly Totals* | 26                     | 4                 | 22.3                     |
| <b>2008 Annual Totals*</b>        | <b>48</b>              | <b>78</b>         | <b>20.4</b>              |

*\*Information contained in this table is the most recently obtained from Virginia Department of Environmental Quality (10/29/08)*

The Particulate Matter collections conducted at the Cameron Station site exceeds for collection the EPA standard, which is a 75% or greater capture percentile for a stationary site. This site utilizes a standard sampling schedule and the sampling and collection schedule is used to gather a wider range of PM-10 data. The standard sampling and collection events are set by the EPA.

The 24 hour standard for ambient PM-10 was established by the EPA at 150 micrograms per cubic meter. The highest recorded values during this sampling period are more than 3 times lower than this threshold. This site has seen a 14% reduction in its peak PM-10 value from the previous year.

The City of Alexandria continues to monitor ambient air at the Armistead Boothe Park monitoring station.